

REMARKS

Amendment to the claims

The language of claim 1 has been amended to recite "treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and etching agent to thereby form forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer".

The language of claim 7 has been amended to recite "treating said patterned silicon layer with patterns and etching residues on sidewalls thereof using a gas comprising oxygen and etching agent to thereby form forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer".

The language of claim 14 has been amended to recite "introducing a gas containing oxygen treatment, using a gas comprising oxygen and etching agent, to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer".

The language of claim 19 has been clarified to recite that the gas "comprises 90%~100% oxygen and not more than 10~0% etching agent used in second etching".

The amendments of claims 1, 7, 14 and 19 are supported by the application as filed, in particular Figs. 2D-2E and the corresponding portions of the specification.

Claim 12 was made dependent on claim 7. This amendment is supported by the application as filed, for example page 3, lines 11-12 of the specification.

All claim amendments are made without prejudice, and the Applicants expressly reserves the right to prosecute any matter cancelled from the claims in this application or in any derivative thereof.

Rejections under 35 U.S.C. 103

Claims 1-3, 5-10, 12-15 and 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,204,130 to Gardner in view of the admitted prior art, and claims 4, 11 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable

over Gardner in view of the admitted prior art, and further in view of U.S. Patent No. 5,977,589 to Schloesser. Applicants respectfully disagree.

Claim 1

In section 2 of the Action, the Examiner asserts that Gardner's method of forming an oxide layer by oxygen treatment (col. 4, lines 34-43) is the same as the process described by the claimed invention, and would therefore create an oxide layer on the etching residues. Applicants respectfully disagree, and submit that one of ordinary skill in the art would readily understand that, contrarily to the Examiner's assertion, Gardner's method of forming an oxide layer by oxygen treatment is not the same as the process described by the claimed invention, as evidenced by the fact that Gardner's method explicitly creates an oxide layer in the polysilicon block 209 (col. 4, lines 34-39 and Fig 2E: oxide layer is formed by consuming block 209), whereas the recited method creates an oxide layer on patterned silicon layer 202a (Fig. 2E). Applicants submit that the Examiner has failed to show that Gardner or the admitted prior art disclose such a feature, and that at least in view of the above, claim 1 is patentable over Gardner in view of the admitted prior art.

However, in order to move the application to issue, Applicants have detailed in claim 1 that the process comprises "*treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and etching agent*". Applicants note that the gas used by the invention as recited in claim 1 allows oxidizing the upper layer of the etching residues to form the buffer layer on the residues as shown on Figs. 2D, 2E. Applicants note that Gardner teaches (col. 4, lines 34-35) oxidizing the polysilicon block 209 in an oxygen bearing ambient (e.g. O₂ and/or H₂O), but nowhere teaches or suggest using a gas "*comprising oxygen and etching agent*" as recited in claim 1 as amended.

Applicants note that Gardner does not address the problem of etching residues. Applicants further submit that, even if one of ordinary skill in the art had somehow been brought to consider the problem of removing the etching residues, deemed by the Examiner to be inherently present in the structure of Gardner, nothing in Gardner would have suggested to one of ordinary skill in the art to form a buffer layer as recited

in claim 1, in particular forming the buffer layer on the residues, and using the recited "*gas comprising oxygen and etching agent*", since Gardner only teaches using O₂ or H₂O.

Applicants respectfully submit that the Examiner has failed to show that the admitted prior art discloses or suggests using a gas such as recited in claim 1 for forming a buffer layer on the etching residues. Accordingly, Applicants respectfully submit that the Examiner has failed to show that any combination of Gardner and the admitted prior art would have led one of ordinary skill in the art to a process as recited in claim 1, and in particular comprising "*treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and etching agent*", and submit that claim 1 is patentable over Gardner in view of the admitted prior art.

Claims 7 and 14

The above arguments can be used to show that Gardner, as well as the admitted prior art, fails to disclose or suggest a method as recited in claim 7, and in particular comprising "*treating said patterned silicon layer with patterns and etching residues on sidewalls thereof using a gas comprising oxygen and etching agent to thereby form forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer*", or a method as recited in claim 14, and in particular comprising "*introducing a gas containing oxygen treatment, using a gas comprising oxygen and etching agent, to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer*". Accordingly; Applicants respectfully submit that claims 7 and 14 are patentable over Gardner in view of the admitted prior art.

Claims 2-3, 5-6, 8-10, 12-13, 15 and 17-20

Claims 2-3 and 5-6 depend directly or indirectly on claim 1; claims 8-10 and 12-13 depend directly or indirectly on claim 7, and claims 15, and 17-20 depend directly on claim 14. Applicants respectfully submit that at least in view of their dependency on claims 2-3, 5-6, 8-10, 12-13, 15 and 17-20 are patentable over Gardner in view of the admitted prior art.

Claims 4, 11 and 16

Claim 4 depends on claim 1, claim 11 depends on claim 7, and claim 16 depends on claim 14. Applicants respectfully submit that the Examiner has failed to show that Schloesser discloses or suggests a method as recited in claim 1, and in particular comprising "treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and etching agent to thereby form forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer", as recited in claim 7, and in particular comprising "treating said patterned silicon layer with patterns and etching residues on sidewalls thereof using a gas comprising oxygen and etching agent to thereby form forming an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer", or a method as recited in claim 14, and in particular comprising "introducing a gas containing oxygen treatment, using a gas comprising oxygen and etching agent, to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer". Accordingly, in view of the above, Applicants submit that the Examiner has failed to show that a combination of Gardner, the admitted prior art and Schloesser would have led one skilled in the art to a method as recited in claims 1, 7 or 14. Applicants therefore respectfully submit that claims 1, 7 and 14 are patentable over Gardner in view of Schloesser, and that at least in view of their dependency on claims 1, 7 or 14, claims 4, 11 and 16 are patentable over Gardner in view of the admitted prior art and further in view of Schloesser.

In view of the above, Applicants submit that the application is now in condition for allowance and respectfully urge the Examiner to pass this case to issue.

The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed

and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

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(Date of Transmission)

Susan Papp
(Name of Person Transmitting)

Susan Papp
(Signature)

11/22/05
(Date)

Respectfully submitted,


Richard Berg
Attorney for Applicants
Reg. No. 28,145
LADAS & PARRY
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036
(323) 934-2300 voice
(323) 934-0202 facsimile